REVIEW article

Dietary and medicinal plant-based management of diarrhea: a mini review

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Abstract: Diarrhea continues to be a major global health concern, accounting for over 1.9 million fatalities each year, especially in children under five. Oral rehydration and antibiotics are part of the conventional treatment; nevertheless, phytotherapy, the use of plant-based treatments, and nutritional approaches provide an alternative or complementary solution, particularly in cases of antibiotic resistance or persistent diarrhea. This review explores the historical and scientific basis of phytotherapy and nutrition, as well as its pharmacological significance, clinical effectiveness, and potential integration with contemporary medicine. The growing interest in complementary therapies highlights the need for further study, despite some herbal remedies lacking solid clinical evidence. Through anti-inflammatory, anti-infectious, and gut-modulating processes, phytotherapy shows promise in reducing symptoms and improving gut health.

Introduction

Frequent, loose, or watery stools are the hallmark of diarrhea, a common gastrointestinal disorder [1, 2]. Infections, food intolerances, stress, drugs, or underlying digestive issues can all cause it. Inadequate nutritional management can result in dehydration, electrolyte imbalance, gastric discomfort, and malnutrition [3-7], especially in children and older adults, even though acute diarrhea most of the time resolves on its own [3]. Diarrhea can be controlled with a low-fiber diet [8]. A low-fiber diet may deviate from standard guidelines for a healthy diet by limiting certain fruits, vegetables, whole grains, nuts, and legumes. However, this natural method might be helpful for managing and preventing diarrhea in addition to conventional medical care. In many nations, the use of herbs and herbal medications to treat diarrhea is widespread (**Figure 1**). These naturally occurring plants are widely accepted by the public and function as less expensive substitutes for conventional medications [9]. Given this, it is necessary to look for and thoroughly record plants that have antidiarrheal effects. Evidence-based natural therapies, such as dietary modifications, hydration techniques, probiotics, herbal remedies, and lifestyle modifications, are discussed.

Understanding the underlying cause is essential for effective management. Diarrhea can be classified into: Acute diarrhea**,** usually caused by infections (viral, bacterial, or parasitic), *chronic diarrhea***,** often linked to conditions such as irritable bowel syndrome, inflammatory bowel disease [10], or food intolerance, *osmotic diarrhea***,** resulting from poor absorption of certain substances, and *secretory diarrhea***,** caused by excessive secretion of fluids into the intestine.

Nutritional management: The intestine's capacity to absorb nutrients and fluids is hampered by diarrhea. Maintaining energy levels, preventing dehydration, and promoting intestinal mucosa regeneration are all achieved by continuing to consume the right foods. Current dietary guidelines emphasize early and appropriate

feeding, in contrast to previous fasting practices [11, 12]. Probiotics aid in reestablishing the regular intestinal flora that was disturbed by diarrhea. Live culture yogurt and fermented foods can lessen the length and intensity of diarrhea, especially infectious and antibiotic-associated diarrhea [13]. Continuous feeding is crucial for infants and young children. During episodes of diarrhea, breastfeeding should continue. To ensure sufficient nutrition and a quicker recovery, age-appropriate soft foods should be served in small, frequent meals. The most critical aspect of dietary management is maintaining adequate hydration. Excessive loss of water and electrolytes can rapidly lead to dehydration. Recommended fluids include: Oral rehydration solution, rice water or barley water, coconut water, and clear soups and broths. Easily digestible, low-fat, and low-fiber foods are preferred during acute diarrhea. These foods reduce bowel irritation and help firm stools. Commonly recommended foods include: Bananas (rich in potassium and pectin), plain rice or rice porridge, applesauce, toast or dry crackers, and boiled potatoes. Certain foods can worsen diarrhea by increasing intestinal motility or osmotic load. That's why foods to be avoided include: Fried and fatty foods, spicy foods, High-fiber foods such as raw vegetables and whole grains, dairy products in cases of temporary lactose intolerance, and artificial sweeteners like sorbitol.

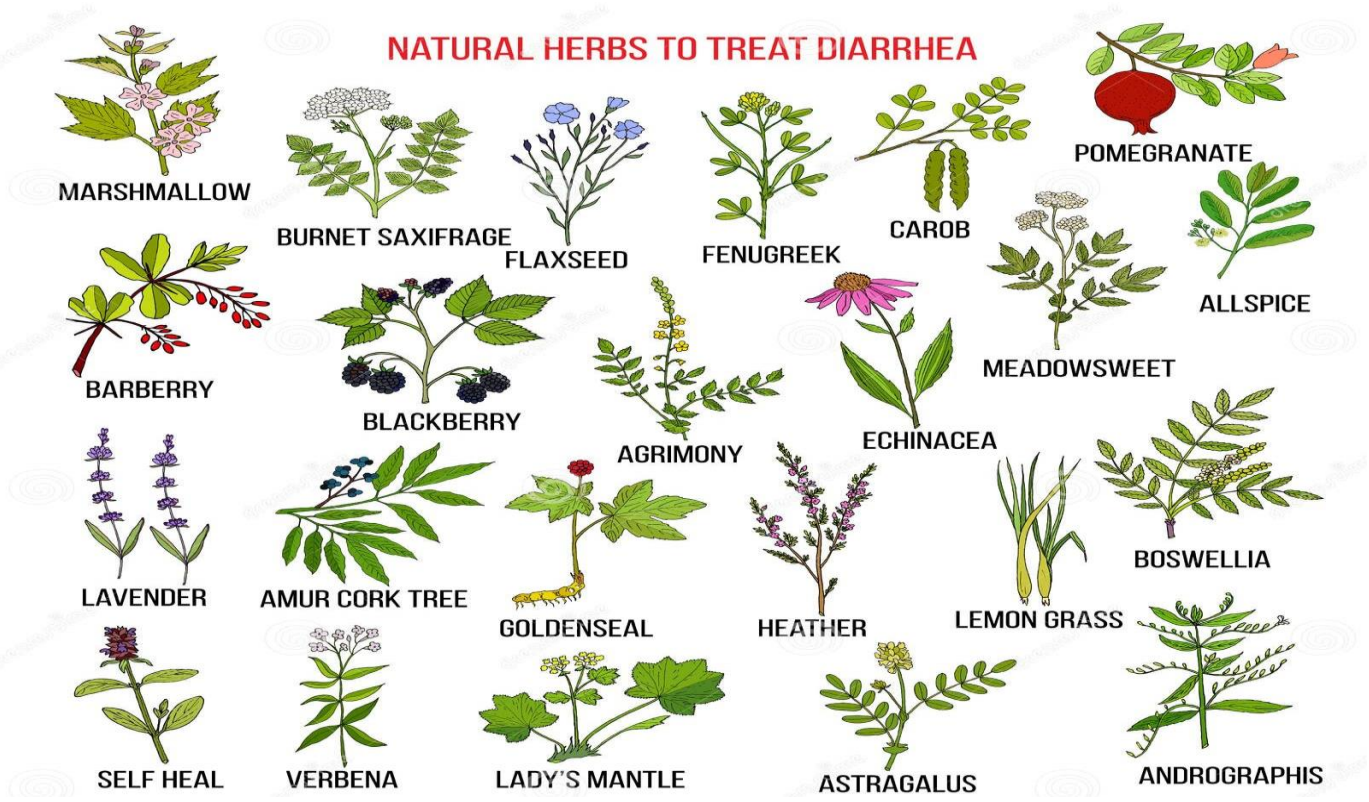

Figure 1: Medicinal herbs can be used against diarrhea

Medicinal plant-based remedy: Rapid evacuation of liquid, semi-solid, or soft stools is known as diarrhea, and it is a common sign of many underlying illnesses [14]. Many cultures throughout the world have traditionally treated lots of health problems with herbal medicines [15-17]. Certain distilled extracts and medications are now regarded as contemporary herbal remedies by a number of systems. Substances that are not derived from herbs are not included in this review. Chamomile, peppermint, and other medications with anti-diarrheal properties have been extensively studied and sold; nevertheless, keep in mind that there are few clinical findings when using herbal medicine for diarrhea [18]. Polyphenols, as a group, are often found in the majority of herbal medications that have an impact [19]. However, alkaloids, flavonoids, glycosides, and essential oils do not seem to be predictive for clinical anti-diarrheal action as a group, despite their excellent *in vitro* activity [20]. Many herbal remedies, particularly the anti-inflammatory ones, are likely to affect intracellular stress signaling pathways in the gut [21, 22].

Worldwide, diarrhea is a major contributor to both high morbidity and mortality. Herbal remedies for acute or chronic diarrhea are widely used in traditional medicine (**Table 1**). Several herbal plants are used to treat diarrhea in traditional medicine. A few studies have reportedly verified the efficacy of herbal plants in treating diarrhea. Although there are many different types of herbal treatments for treating acute or chronic diarrhea, they are frequently made as infusions or decoctions. Some people still use traditional remedies to manage their health because of their religious, spiritual, and sociocultural beliefs, even if modern technology has made it possible to incorporate plant extracts into biomedicine to improve patients' quality of life [23-26]. Because they believe these natural medicines are helpful and have no negative side effects, some people continue to use them. Other variables, such as how the particular herbal treatment is used to treat diarrhea, can affect the suggested dosage. When used in combination, the dosage is typically reduced. There are many different dosage forms, such as tea, powdered dry extracts, herbal remedies, and perhaps even a fluid extract. Adverse effects have been linked to long-term or excessive use of some herbal products. Recommendations for babies might vary greatly by region [27, 28].

Table 1: Common medicinal plants used in the treatment of diarrhea

Medicinal plant	Part used	Active constituents	Effect
Psidium guajava L. (Guava)	Leaves, bark	Tannins, flavonoids (quercetin)	Antimicrobial activity; tannins reduce intestinal secretions and motility
Aegle marmelos L. Corrêa (Bael)	Fruits, leaves	Tannins, marmelosin, alkaloids	Antisecretory and antispasmodic effects
Punica granatum L. (Pomegranate)	Fruit peel and bark	Punicalagin, ellagic acid, tannins	Astringent effect; inhibits intestinal pathogens
Zingiber officinale Roscoe (Ginger)	Rhizome	Gingerols, shogaols	Antispasmodic, stomachic and anti-inflammatory effects
Camellia sinensis (L.) Kuntze (Tea)	Leaves	Catechins, tannins	Reduces intestinal secretion; antimicrobial
Berberis aristata	Root, stem bark	Berberine	Antimicrobial; inhibits intestinal motility

Herbal and traditional remedies: Several herbs have been traditionally used to manage diarrhea due to their antimicrobial, anti-inflammatory, or astringent properties [29, 30]. Common natural remedies include: Ginger, which supports digestion and reduces intestinal inflammation, Chamomile, known for its calming effect on the gastrointestinal tract, Psyllium husk, which absorbs excess water and adds bulk to stool, and Guava leaf, traditionally used in many cultures for acute diarrhea.

Clinical evidence: The majority of episodes of diarrhea are caused by an invasive illness, making it a serious public health concern and a major cause of death worldwide. Historically, a number of natural items have been utilized to treat diarrhea and manage its symptoms. Numerous studies show that a number of plant extracts are beneficial [31]. Thus, the purpose was to critically assess the published literature about the efficacy and clinical data pertaining to the use of phytodrugs in the treatment of various types of diarrheas [32, 33]. Phytotherapy has been shown to be equally successful in treating nursing infants as it is in treating patients with acute diarrhea. However, when using medications to treat chronic functional disorders, patients perceive a better improvement in their symptomatology [34]. The ideal option in a clinical trial is a control group that receives a placebo, parallel clinical trials with active controls may also be required. The safety and efficacy profile of two or more herbal medicines or traditional medicines can really be examined in the same trial by employing a pertinent comparator. In this manner, ethical issues pertaining to the use of placebos in clinical trials can be resolved, and the study findings can provide comfort regarding the effectiveness of the herbal cure. Regulations covering traditional medicines, phytodrugs, and herbal remedies have been established since not all traditional medicines are safe ,and certain herbal remedies have strong pharmacological effects [35, 36].

Lifestyle and habit: The incidence and recurrence of diarrhea can be significantly decreased by adopting preventive measures and changing one's lifestyle [37]. Diarrhea is a gastrointestinal disorder that is mostly avoidable. One of the best ways to stop the spread of diarrheal pathogens is to practice hand and oral hygiene, especially frequent hand washing with soap and clean water before meals and after defecation. Waterborne infections are greatly decreased by having access to clean drinking water and by using boiled, filtered, or treated water. Food hygiene is equally important; eating freshly made meals, washing fruits and vegetables well, avoiding contaminated or improperly stored food, and keeping cooking utensils clean all help to prevent gastrointestinal infections [38-41]. Maintaining a clean-living environment, using sanitary latrines, and disposing of waste properly are all examples of adequate sanitation practices that further stop the spread of illness. A balanced diet, regular meals, stress reduction, and abstaining from excessive alcohol and caffeine are examples of healthy lifestyle practices that promote optimal digestive function and lessen the risk of diarrhea. Preventive measures for infants and young children include timely immunization, safe complementary feeding practices, and exclusive breastfeeding for the first six months of life. When taken as a whole, these lifestyle and preventive measures not only shield people from diarrheal illness but also enhance public health and lessen the burden of disease in the community [42, 43]. Prevention of diarrhea also requires collective efforts. Key measures might include: Health education programs, Improved water supply systems, initiation of infrastructure development, and surveillance and early management of outbreaks [44].

Conclusion: Phytotherapy has great potential for treating diarrhea since it provides a safe, natural alternative, especially for individuals with chronic forms of the illness or those who are resistant to traditional treatments. The broad-spectrum pharmacological actions of plant-based therapies are what give them their therapeutic potential. Although there is still little clinical research on herbal antidiarrheal medications, the increasing amount of data and their historical application point to a supplementary function in contemporary medicine. The article examines the scientific and historical foundation of phytotherapy and nutrition, as well as its pharmacological importance, clinical efficacy, and potential integration with modern medicine.

References

1. Chen C. Acute diarrheal disease: Causes, symptoms, and treatment. Journal of Evidence-Based Medicine and Health. 2023; 10(02): 1-2. doi: 10.18410/jebmh/2023/10/02/86
2. Semrad CE. Approach to the patient with diarrhea and malabsorption. Goldman's Cecil Medicine. 2012; 8: 895-913. doi: 10.1016/B978-1-4377-1604-7.00142-1
3. Awuchi CG, Igwe VS, Amagwula, Ikechukwu O. Nutritional diseases and nutrient toxicities: A systematic review of the diets and nutrition for prevention and treatment. International Journal of Advanced Academic Research Sciences, Technology and Engineering. 2020; 6(1): 1-46. Corpus ID: 233304616.
4. Das SK, Afroze F, Ahmed T, Faruque AS, Sarker SA, Huq S, et al. Extreme hypernatremic dehydration due to potential sodium intoxication: Consequences and management for an infant with diarrhea at an urban intensive care unit in Bangladesh: A case report. Journal of Medical Case Reports. 2015; 9: 124. doi: 10.1186/s13256-015-0611-y
5. Chung C, Park JS, Seo JH, Youn HS. Severe gastrointestinal hemorrhage in a child after taking an improper oral rehydration solution. Pediatric Gastroenterology, Hepatology and Nutrition. 2020; 23(4): 405-410. doi: 10.5223/pghn.2020.23.4.405
6. Ahmed T, Haboubi N. Assessment and management of nutrition in older people and its importance to health. Clinical Interventions in Aging. 2010; 5: 207-216. doi: 10.2147/cia.s9664.
7. Sony TA, Alam MN, Hoque M. An investigation performed in a Bangladeshi General Hospital on the use of proton pump inhibitors drugs by patients. Hospital Pharmacology. 2024; 11(3): 1476-1482. doi: 10.5937/hpimj 2403476S
8. Low Fiber Diet for Diarrhea. Penn Medicine. Available from: https://www.med.upenn.edu/ nets2023/assets/ user-content/documents/low-fiber-diet-for-diarrhea.pdf (Accessed 12 January 2026)
9. Tetteh J, Takramah WK, Ayanore MA, Adoliba Ayanore A, Bisung E, Alamu J. Trends for diarrhea morbidity in the Jasikan District of Ghana: Estimates from district level diarrhea surveillance data, 2012-2016. Journal of Tropical Medicine. 2018; 2018(1): 4863607. doi: 10.1155/2018/4863607

10. Rafi IK, Bhuiyan MH. A brief overview of medicinal plants to treat inflammatory bowel diseases. Mediterranean Journal of Medicine and Medical Sciences. 2025; 1(2): 23-31. doi: 10.5281/zenodo.17014538
11. National Research Council (US) Subcommittee on Nutrition and Diarrheal Diseases Control. Nutritional Management of Acute Diarrhea in Infants and Children. Washington (DC): National Academies Press (US); 1985; 1.
12. Barberio B, Bertin L, Facchin S, Bonazzi E, Cusano S, Romanelli G, et al. Dietary interventions and oral nutritional supplementation in inflammatory bowel disease: Current evidence and future directions. Nutrients. 2025; 17(11): 1879. doi: 10.3390/nu17111879
13. Kopacz K, Phadtare S. Probiotics for the prevention of antibiotic-associated diarrhea. Healthcare (Basel). 2022; 10(8): 1450. doi: 10.3390/healthcare10081450
14. WHO. Diarrheal disease. Available from: https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease
15. Yuan H, Ma Q, Ye L, Piao G. The traditional medicine and modern medicine from natural products. Molecules. 2016; 21(5): 559. doi: 10.3390/molecules21050559
16. Abdullahi AA. Trends and challenges of traditional medicine in Africa. African Journal of Traditional, Complementary and Alternative Medicines. 2011; 8(5 Suppl): 115-123. doi: 10.4314/ajtcam.v8i5S.5
17. Hoque M. Therapeutic applications and medicinal significance of Dillenia indica in healthcare: A review. Future Natural Products. 2024; 10(2):100-108. doi: 10.34172/fnp.203
18. Elmansuri NO, Mhani LA, Elhaddar SE, Shushni MA. Libyan mothers' awareness of natural products among infants. Mediterranean Journal of Pharmacy and Pharmaceutical Sciences. 2022; 2(2): 38-43. doi: 10.5281/zenodo.6780482
19. Nizamuddin SFS. Polyphenol-rich black chokeberry (*Aronia melanocarpa*) and its therapeutic potential in type 2 diabetes mellitus: A comprehensive review. Mediterranean Journal of Medicine and Medical Sciences. 2025; 1(3): 31-42. doi: 10.5281/zenodo.17619107
20. Karthiraja AS, Kowsalya K, Durga Sri R, Revathi S, Karthika A. Extraction of flavonoids from natural sources using modern techniques: A review. Mediterranean Journal of Medicine and Medical Sciences. 2025; 1(3): 43-46. doi: 10.5281/zenodo.17738965
21. Lin X, Fang Y, Cheng Y, Wang Q. Chinese herbal medicine for irinotecan-induced diarrhea: A systematic review and meta-analysis. Explore (NY). 2024; 20(2): 158-167. doi: 10.1016/j.explore. 2023.08.003
22. Bun SS, Ollivier E. Ethnobotanical study of medicinal plants used by K'Ho-Cil people for treatment of diarrhea in Lam Dong Province, Vietnam. Journal of Herbal Medicine. 2020; 19: 100320. 1-41. doi: 10.1016/j.hermed. 2019.100320
23. Ahmed R, Uddin MM, Hoque M. Nutraceuticals: Food-based therapeutics and health benefits. Mediterranean Journal of Medicine and Medical Sciences. 2025; 1(1): 22-30. doi: 10.5281/zenodo.15771921
24. Bhat R, Bhat SS, Nisarga P. A systematic review and meta-analysis of traditional Chinese medicine in Parkinsonism. Mediterranean Journal of Medical Research. 2025; 2(4): 169-178. doi: 10.5281/zenodo. 17344302
25. Hoque M, Md. Hasan N, Saikh S. Using common medicinal plants to treat high blood pressure: An updated overview and emphasis on antihypertensive phytochemicals. Mediterranean Journal of Pharmacy and Pharmaceutical Sciences. 2025; 5(3): 1-10. doi. 10.5281/zenodo.15788473
26. Rafi IK. Natural treatment for nausea and vomiting: A short message. Mediterranean Journal of Medical Research. 2025; 2(2): 32-37. doi: 10.5281/zenodo.15427363
27. GBD 2017 Diarrhoeal Disease Collaborators. Quantifying risks and interventions that have affected the burden of diarrhoea among children younger than 5 years: An analysis of the Global Burden of Disease Study 2017. The Lancet Infectious Diseases. 2020; 20(1): 37-59. doi: 10.1016/S1473-3099(19)30401-3
28. Mulatya DM, Mutuku FW. Assessing comorbidity of diarrhea and acute respiratory infections in children under 5 years: Evidence from Kenya's demographic health survey 2014. Journal of Primary Care and Community Health. 2020; 11: 2150132720925190. doi: 10.1177/2150132720925190
29. Manetu W, M'masi S, Recha C. diarrhea disease among children under 5 years of age: A global systematic review. Open Journal of Epidemiology. 2021; 11: 207-221. doi: 10.4236/ojepi.2021. 113018
30. Akhlaq Muhammad, Khaleeq Alum MK, Alam MM. Anti-inflammatory potential of medicinal plants. Mediterranean Journal of Pharmacy and Pharmaceutical Sciences. 2022; 2(1): 13-21. doi: 10.5281/zenodo. 6399381
31. Rafi IK. Cough care with medicinal herbs: Safe and natural alternatives. Mediterranean Journal of Medicine and Medical Sciences. 2025; 1(2): 17-22. doi: 10.5281/zenodo.16763823
32. Han KSS , Win KT, Chit MT. Evaluation of antimicrobial, antioxidant, antidiabetic activities, and acute toxicity of *Elephantopus scaber* L. Mediterranean Journal of Pharmacy and Pharmaceutical Sciences. 2025; 5(2): 87-95. doi: 10.5281/zenodo.15365040
33. Siciliano V, Nista EC, Rosà T, Brigida M, Franceschi F. Clinical management of infectious diarrhea. Reviews in Recent Clinical Trials. 2020; 15(4): 298-308. doi: 10.2174/1574887115666200628144128

34. Cherry RN, Blanchard SS, Chogle A, Santucci NR, Mehta K, Russell AC. Herbal approaches to pediatric functional abdominal pain. Children (Basel). 2022; 9(8): 1266. doi: 10.3390/children9081266
35. Li Z, Li J, Zhang F, Zhu N, Sha Z, Li D, Tu Y, Hou J. Antidiarrheal effect of Sechang-Zhixie-San on acute diarrhea mice and network pharmacology deciphering its characteristics and potential mechanisms. Evidence-Based Complementary and Alternative Medicine. 2020; 2020: 8880298. doi: 10.1155/2020/ 8880298
36. Namukasa Mugerwa F. Phytotherapy for diarrhea: Bridging herbal medicine and modern treatment. Research Output Journal of Biological and Applied Science. 2024; 4(3): 55-59. doi: 10.59298/ ROJBAS/2024/435559
37. Rafi IK, Aktaruzzaman M. Lifestyle and nutritional deficiencies associated with vegetarian diets. Mediterranean Journal of Medical Research. 2025; 2(2): 20-25. doi: 10.5281/zenodo.15336103
38. Ejemot-Nwadiaro RI, Ehiri JE, Arikpo D, Meremikwu MM, Critchley JA. Hand-washing promotion for preventing diarrhoea. Cochrane Database of Systematic Reviews. 2021; 12(1): CD004265. doi: 10.1002/ 14651858. CD004265.pub4
39. Curtis V, Cairncross S. Effect of washing hands with soap on diarrhea risk in the community: A systematic review. The Lancet Infectious Diseases. 2003; 3(5): 275-281. doi: 10.1016/s1473-3099(03)00606-6
40. Kamm KB, Feikin DR, Bigogo GM, Aol G, Audi A, Cohen AL, et al. Associations between presence of handwashing stations and soap in the home and diarrhoea and respiratory illness, in children less than five years old in rural western Kenya. Tropical Medicine and International Health. 2014; 19(4): 398-406. doi: 10.1111/ tmi.12263
41. Hoque M, Aktaruzzaman M, Hasan MN. Dental patients' views on oral health and hygiene: A questionnaire-based assessment in Bangladesh. GMS Hygiene and Infection Control. 2026; 21: Doc04. doi: 10.3205/ dgkh000613
42. WHO. Sanitation. Updated 22 March 2024. Available from: https://www.who.int/news-room/fact-sheets/detail/sanitation (Accessed 28 December 2025)
43. Bloomfield SF, Aiello AE, Cookson B, O'Boyle C, Larson EL. The effectiveness of hand hygiene procedures in reducing the risks of infections in home and community settings including handwashing and alcohol-based hand sanitizers. The American Journal of Infectious Control. 2007; 35(10): S27-S64. doi: 10.1016/j.ajic.2007. 07.001
44. Jamiu MO, Maiha BB, Danjuma NM, Giwa A. Educational intervention on knowledge of hypertension and lifestyle/dietary modification among hypertensive patients attending a tertiary health facility in Nigeria. Mediterranean Journal of Pharmacy and Pharmaceutical Sciences. 2024; 4(1): 1-11. doi: 10.5281/zenodo. 10535778

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